

DOE SCIENTIFIC AND TECHNICAL SOFTWARE

BEST PRACTICES

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DOE Scientific and Technical Software
Best Practices

Table of Contents

- 1.0 Introduction
- 2.0 Responsibilities
 - 2.1 OSTI/ESTSC
 - 2.2 SIACs
 - 2.3 Software Submitting Sites/Creators
 - 2.4 Software Sensitivity Review
- 3.0 Software Announcement and Submission
 - 3.1 STI Software Appropriate for Announcement
 - 3.2 Announcement/Submission Criteria
 - 3.3 Software Categories
 - 3.4 Announcement Notice Metadata Elements
- 4.0 Software Access
 - 4.1 Foreign Access to Software
 - 4.2 Copyrighted Software
 - 4.3 Software Licenses
 - 4.4 Distribution Statement and Disclaimer

Attachments

DOE SCIENTIFIC AND TECHNICAL SOFTWARE BEST PRACTICES

1. INTRODUCTION

Department of Energy (DOE) Order (O) 241.1B requires that scientific and technical information (STI), including scientific and technical computer software, be made broadly available, within applicable laws and Departmental requirements, to accomplish mission objectives and strategic goals, promote scientific advancement, satisfy statutory protection and public dissemination requirements, and ensure a fair return on Departmental and taxpayer investment. Specifically, DOE O 241.1B requires that STI products, including software, resulting from scientific and technical endeavors, be announced and made available to the Office of Scientific and Technical Information (OSTI) to ensure that OSTI can fulfill its announcement, dissemination, and exchange responsibilities on behalf of the Department of Energy.

Software management has advanced from a centralized collection, announcement, and dissemination activity to a decentralized activity. Paper-based submission guidelines have been replaced with electronic submission procedures.

This document has been developed to reflect these new procedures:

- internal review
- announcement
- dissemination

As new guidelines are implemented, this document will continue to be reviewed and updated.

2. RESPONSIBILITIES

2.1 OSTI/ESTSC

OSTI, located in Oak Ridge, TN, serves as the DOE's software management facility for the announcement, collection, licensing and distribution of federally-funded software developed by DOE national laboratories, other DOE facilities/contractors, and awardees. This software management activity is operated by the Energy Science and Technology Software Center (ESTSC), located at OSTI.

The ESTSC

- serves as the Department's liaison for software requests from sensitive countries. Upon a request for software from a sensitive country, OSTI coordinates any necessary reviews by the Office of International Regimes and Agreements (NA-243).

- serves as the operating agent for implementing portions of the DOE international exchange agreements with the Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development (OECD), which provides for the exchange of unclassified nuclear-related scientific and technical software.
- serves as the Department's availability point, other than the copyright holder (or its licensees), for DOE and DOE-contractor originated software for which copyright has been asserted. In a decentralized environment, the originating site may choose to retain the software, but must provide a 241.4 Software Announcement Notice to OSTI for announcement according to DOE O 241.1B.
- works with the Specialized Information Analysis Centers (SIACs), organizations sponsored by DOE to perform data analysis, including the collection, evaluation, announcement, and dissemination of computer software in specialized subject areas to maximize its effectiveness, avoid duplication of efforts, and ensure that requesters are referred to an appropriate SIAC.

2.2 SIACs

“An Information Analysis Center is a formally structured organizational unit specifically (but not necessarily exclusively) established for the purpose of acquiring, selecting, storing, retrieving, evaluating, analyzing, and synthesizing a body of information in a clearly defined specialized field or pertaining to a specified mission with the intent of compiling, digesting, repackaging, or otherwise organizing and presenting pertinent information in a form most authoritative, timely, and useful to a society of peers and management.”¹

SIACs should ensure that an announcement record is provided to ESTSC for each software package they receive and make available. ESTSC and the SIACs should work together to ensure the implementation of consistent procedures for the dissemination of computer software in accordance with DOE O 241.1B. As determined by the applicable contract rights and technical data clause, ESTSC may share the right to license and distribute software through a specific agreement with an individual SIAC. SIACs may receive and make available software within their scope of interest/operation, as described below. Recognized SIACs, as of the date of this document, are:

- The Radiation Safety Information Computational Center (RSICC) of the Oak Ridge National Laboratory (ORNL). RSICC specializes in computer programs and data sets pertinent to radiation transport and safety. <http://www-rsicc.ornl.gov/>.
- The National Nuclear Data Center (NNDC) of Brookhaven National Laboratory (BNL). NNDC specializes in computer programs and data sets pertinent to nuclear cross sections. <http://www.nndc.bnl.gov>

¹ Proceedings of the Forum of Federally Supported Information Analysis Centers, November 7–8, 1967, PF 177051.

- The Carbon Dioxide Information Analysis Center (CDIAC) of the Environmental Sciences Division of ORNL. CDIAC supports the nation's carbon dioxide-climate research effort by providing a focal point for the compilation and distribution of global-change-related information under systematic quality control. <http://cdiac.ornl.gov>

2.3 Software Submitting Sites/Creators

To centrally announce the availability of DOE's STI products, each DOE and DOE contractor element that develops software eligible for distribution is required by DOE O 241.1B to provide an announcement notice using AN 241.4 Software Announcement Notice. ESTSC processes the record and posts the software's availability via the ESTSC Home Page (www.osti.gov/estsc).

2.4 Software Sensitivity Review

As required by DOE O 241.1B, software submitting sites are to review all software for classified and sensitive unclassified information, including Personally Identifiable Information (PII), according to approved local procedures.

Prior to announcing and/or submitting software to ESTSC or a SIAC, or disseminating software publicly, the submitting site should conduct reviews to determine the appropriate Intellectual Property or other category of sensitivity. These categories include:

1. **Unlimited Announcement** - Software which can be made available to all requesters; government, public and foreign (sensitive countries require Headquarters' approval).
2. **Open Source Software** - Computer software distributed under a license that grants the user the rights to use, copy, modify, prepare derivative works, and distribute the software without having to make royalty payments. Such distribution may include original or modified source code, other formats, and any derivative works thereof. **Contractors must submit AN 241.4 to ESTSC and provide a unique URL on the Announcement Notice that ESTSC uses to announce availability. The originating site is responsible for making the software available.**
3. **Copyrighted/Unlimited** – ESTSC is authorized in major contractor data clauses to disseminate copyrighted works developed using DOE funding, under a **BROAD** government license. Works may be made available to all requesters. Sensitive countries require Headquarters approval. An expanded description/abstract is required.
4. **Copyrighted/Limited** – ESTSC is authorized in major contractor data clauses to disseminate copyrighted works developed using DOE funding, under a **LIMITED** government license, to Government agencies and their contractors. The copyright holder will disseminate to all other requesters. An expanded description/abstract is

required.

5. Official Use Only (OUO)

- A. **Export Controlled Information** (e.g. under ITAR/EAR) (Exemption 3) – OUO
- B. **Protected Data** – CRADA or OTHER (please specify) OUO
- C. **Patent Pending** (Exemption 3) – OUO
- D. **Limited Rights Data** (Proprietary/Trade Secret) (Exemption 4) – OUO
- E. **Nuclear Energy Applied Technology** (Exemption 5) – OUO
- F. **Program-Determined Official Use Only** (enter exemption number) – OUO
- G. **Security Sensitive Information** (Exemption 2) – OUO

3. SOFTWARE ANNOUNCEMENT AND SUBMISSION

3.1 STI Software Appropriate for Announcement

Organizations and individuals who have developed and/or modified software during work supported by DOE or during work carried out for others at DOE facilities are required to announce the software with the appropriate announcement notice to ESTSC, if the software meets the following criteria:

- meets the definition of [STI](#);
- is known or expected to be useful inside or outside the DOE community, or is not specific to the originating site; and
- a stable, useable, documented version of the software exists (i.e., the software is not under initial development);
- has undergone all appropriate reviews for sensitivity and export control.

Exclusions. Software that meets the following criteria need not be announced to ESTSC:

- operational systems software that is site-specific, unique to particular hardware, or necessary to ensure the fundamental operability of automated data processing equipment, whether supplied by the manufacturer of the system hardware or others;
- computer software programs developed and/or modified during work carried out for others at DOE facilities which are specifically excluded in the agreement under which the non-DOE funded work was performed;
- software generated under the auspices of the Energy Information Administration; and
- specific software used by power administrations for the operation, control, planning, and modeling of electric power transmission systems and the interconnected utilities.

However, modifications/enhancements to portions of this software that are not an integral part of the whole and have potential application outside the power administrations should be announced.

Using [Attachment 1, Software Categories](#), as a guideline, the software may be made available by either submitting the software package to ESTSC, submitting it to a SIAC (for software of applicable scope for a SIAC), or hosting the software on the originating site's web server (e.g., applicable freeware).

3.2 Announcement/Submission Criteria

The following information/material needs to be included when software is announced or submitted to ESTSC or a SIAC:

- announcement information/metadata contained in AN 241.4 Software Announcement Notice, which includes all required information for announcing and describing the software;
- source code and/or executable file; unique URL; or other location for obtaining the software; and
- documentation, if any, which may consist of a user manual, sample test cases, or similar information required for properly using the software (whether included on the software media itself or provided in a separate file as an electronic document).

3.3 Software Categories

Different categories of software have different distribution requirements, limitations and appropriate distribution channels. These are defined in [Attachment 1, Software Categories](#).

This table is not intended to be an exhaustive list. Contact ESTSC if you have questions regarding the appropriate announcement or distribution channel.

3.4 Announcement Notice Metadata Elements

Metadata elements, (required and optional) pertaining to the AN 241.4, Software Announcement Notice, are listed in [Attachment 2, Announcement Notice Metadata Elements](#).

4. SOFTWARE ACCESS

After submission or announcement to ESTSC, software may also be made available by the originating site in accordance with the categories listed in [Attachment 1, Software Categories](#), and consistent with approved local procedures. Agreements to prevent further dissemination and to protect intellectual property rights should be obtained if necessary.

4.1 Foreign Access to Software

Software originators should not disseminate copies of software packages to foreign nationals without first ensuring the export is lawful in accordance with Federal export regulations, to include those published by the Department of Commerce (15 CFR 730-774), the Department of Energy (10 CFR 810), the Department of State (22 CFR 120-130), and the Nuclear Regulatory Commission (10 CFR 110). Dissemination of software packages to foreign nationals within the United States may be considered a “deemed export” and may require an export license in accordance with Federal export regulations.

All requests for software from sensitive countries should be sent to ESTSC for coordination of approval from the Office of International Regimes and Agreements (NA-243). If approved, the appropriate requesting site may then disseminate the software to the requester.

4.2 Copyrighted Software

Software, for which the originating site HAS asserted copyright, is not publicly disseminated. It is available to DOE contractors and other government organizations in accordance with the terms of the developer’s contract with DOE. Requests for copyrighted software from those other than DOE contractors or governmental entities are referred by ESTSC to the copyright holder for licensing. Software, for which the originating site has NOT asserted copyright, is available to the public from ESTSC, subject to the license agreement described below. Such software may also be available from the originating site according to the site’s procedures.

4.3 Software Licenses

Any DOE-sponsored software package distributed by ESTSC requires a license agreement. This agreement establishes conditions and requirements for requesters’ use of the software package after purchase. Requesters need to return the properly completed and signed agreement to ESTSC before the order will be processed. DOE encourages SIACs to follow this Departmental policy. For originating sites that choose to disseminate software, other licenses or use acknowledgements may be required.

Under the international exchange agreement with the NEA, ESTSC has determined that NEA distribution procedures are appropriately consistent with ESTSC’s licensing policy; therefore, the NEA is not required to sign license forms for packages they receive from ESTSC.

4.4 Distribution Statement and Disclaimer

Rights-in-technical-data clauses for many DOE contracts require a statement acknowledging DOE sponsorship/data rights for information products. The following distribution statement and disclaimer meet those requirements for software and should be affixed to all distributed DOE-sponsored software. Contractors may have specific requirements and required notices in their contracts. Legal counsel should review any appropriate additional markings that are desired; such markings should be consistent with restrictions indicated on the announcement

notice (DOE AN 241.4). Markings should be affixed to all software package elements provided to ESTSC or a SIAC. Respective SIACs, or originating sites, issue their own statements as legally appropriate. The following Distribution Statement and Disclaimer are examples of the wording used by the ESTSC.

Distribution Statement

This computer software has been developed under sponsorship of the U.S. Department of Energy. Any further distribution or use by anyone other than the named licensee of this software package or any data contained therein, unless otherwise specifically provided for, is prohibited without the approval of the Office of Scientific and Technical Information. Requests for DOE-developed computer software shall be referred to the Energy Science and Technology Software Center at the Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831-1020.

Disclaimer

This material was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor the United States Department of Energy, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.